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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,888	09/26/2003	William T. Townsend	(47798) 57493	9563
21874	7590	10/12/2005	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			KRAMER, DEAN J	
		ART UNIT	PAPER NUMBER	
		3652		

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/672,888	TOWNSEND ET AL.
	<b>Examiner</b>	Art Unit
	Dean J. Kramer	3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 01 September 2005.

2a)  This action is FINAL.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-38 is/are pending in the application.  
4a) Of the above claim(s) 32-38 is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-12 and 15-31 is/are rejected.

7)  Claim(s) 13 and 14 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 26 September 2003 is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/10/03, 6/24/04

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_\_

## DETAILED ACTION

### ***Election/Restrictions***

1. Applicant's election without traverse of the invention of Group I, readable on claims 1-31, in the reply filed on 9/1/05 is acknowledged.
2. Claims 32-38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/1/05.

### ***Claim Rejections - 35 USC § 112***

3. Claims 2, 17-21, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no clear antecedent basis for "said hand" (claim 2), "said at least two fingers" (claims 17 and 19), "said vision sensor" (claim 21), or "said angled links" (claim 31).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-10, 15, 16, 19, 20, 30, and 31, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Goldman (2,567,066).

Goldman shows a self-contained gripper comprising a plurality of fingers (14) each having at each rotary joint thereof an actuator (19), an electronic controller (22), wiring (25,29), and a network operating controller (30) for coordinating the operation of all rotary joints. Regarding claims 2 and 10, a plurality of temperature sensors (40) can be mounted at various positions along the fingers (see Figs. 5 and 6). In regard to claims 30 and 31, the outermost links (15) of each finger have a fingernail-like member attached thereto (see Figs. 2 and 3).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 11, 12, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldman (2,567,066) in view of Priolo et al. (5,346,351).

Goldman uses solenoids (22) to move the actuating linkage (19) of each joint rather than a brushless motor as is called for in the above claims of the instant application.

However, the patent to Priolo et al. shows a gripping mechanism (Fig. 3) having a brushless electric motor (101) driving a worm gear (97) to rotatably actuate a clamp (73).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the solenoids of Goldman's mechanism with brushless motors and driven worm gears similar to that shown in the Priolo et al. patent as an alternative yet functionally equivalent means of pivoting a gripping link that could potentially create a stronger gripping force.

9. Claims 1-10, 16-20, and 24, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ulrich (5,501,498) in view of Goldman (2,567,066).

Ulrich shows a robotic gripper substantially similar to that claimed in the instant application except for an actuator mounted at each rotary joint of the fingers.

Goldman, as presented earlier in section 5, shows a solenoid (22) and actuating linkage (19) at each rotary joint of its finger assemblies for individually actuating a respective link.

It would have been obvious to a person having ordinary skill in the art to provide an actuator at each rotary joint of Ulrich's finger assemblies as taught by Goldman in order to create a more accurately controllable gripping operation.

10. Claims 21-23, 28, and 29, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ulrich (5,501,498) in view of Goldman (2,567,066) as applied to claims 1-10, 16-20, and 24 above, and further in view of Maydan et al. (5,280,983).

The patent to Maydan et al. shows a gripping mechanism having optical sensors that use triangulation (see col. 18, lines 18-22) to control the gripper's position.

It would have been obvious to one of ordinary skill in the art to provide any type of well known sensor, such as optical, electromagnetic, capacitance, on the exterior surface of the modified Ulrich gripper as taught by Maydan et al. so that the gripper's position relative to the object being handled or an obstruction could be carefully detected and monitored.

#### ***Allowable Subject Matter***

11. Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Specification***

12. The disclosure is objected to because of the following informalities:

On page 10, line 19, the word "views" should be changed to -view—

The phrases "The handle 10 is 8 axis" (page 14, line 29) and "and 'angle iron'" (page 21, line 1) are not clearly understood.

Appropriate correction is required.

### ***Drawings***

13. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "60", "81", and "546". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

14. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Information Disclosure Statement***

The reference "AC\*\*\*" listed on the IDS submitted June 24, 2004 has been lined through because this reference had already been listed and considered on the IDS submitted November 10, 2003.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Singleton, Jr. and Rosheim both shows actuators located at each rotary joint of a gripping finger.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean J. Kramer whose telephone number is (571) 272-6926. The examiner can normally be reached on Mon., Tues., Thurs., Fri. (7:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Dean J. Kramer 10/4/05  
Primary Examiner  
Art Unit 3652

Djk  
10/4/05